

CONN. R. BELOW HARTFORD

ESSEX

CONNECTICUT

SURVEY

(REVIEW OF REPORTS)



**U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
WALTHAM, MASS.**

JULY 31, 1961

SURVEY

REVIEW OF REPORTS

CONNECTICUT RIVER BELOW HARTFORD

ESSEX, CONNECTICUT

SYLLABUS

The Division Engineer finds that the general navigation facilities on the Connecticut River at Essex, Connecticut are inadequate for the present and prospective needs of the recreational fleet. He finds that benefits are sufficient to warrant modification of the existing project for the Connecticut River below Hartford to provide for an approach channel 10 feet deep, generally 100 feet wide, and 4,400 feet long from the existing 15-foot Federal channel in the river to the central Essex waterfront and return, and for a 34-acre anchorage, 10 feet deep in the southern half and 8 feet deep in the northern half, as shown on the inclosed map. The estimated first cost of construction is \$112,000 (June 1961).

The estimated net cost to the United States is \$56,000 for construction, \$7,000 for preauthorization studies, and \$4,000 for additional navigation aids. Federal maintenance costs are estimated at \$3,700 annually for channel maintenance and \$400 annually for maintenance of navigation aids. The project benefit-cost ratio is 1.7 to 1.0.

The Federal project is recommended, subject to the requirements that local interests contribute 50 per cent of the construction cost, provide lands, easements, rights-of-way and spoil disposal areas, hold and save the United States free from damages, improve the public landing to provide a berthing depth of 8 feet at mean low water, and regulate the use and development of harbor facilities. Local costs are estimated at \$56,000 for the cash contribution and \$4,000 for improvement of the public landing.

The State of Connecticut and the Town of Essex have approved the project plan and have indicated they will share the responsibility of meeting the requirements.

The recommended improvement is considered to be eligible for accomplishment under the continuing authority provided by Section 107 of the 1960 River and Harbor Act. Modification of the existing project under this authority is recommended.

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U. S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM 54, MASS.

NEDGW

31 July 1961

SUBJECT: Survey (Review of Reports) of Connecticut River below Hartford,
at and in the Vicinity of Essex, Connecticut

TO: Chief of Engineers, Department of the Army, Washington, D. C.
ATTN: ENGOW-P

AUTHORITY

1. This report is submitted in compliance with a resolution adopted 18 February 1959 by the Committee on Public Works of the United States Senate as follows:

"RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE UNITED STATES SENATE, that the Board of Engineers for Rivers and Harbors created under Section 3 of the River and Harbor Act, approved 13 June 1902, be and is hereby, requested to review the report, Connecticut River below Hartford, Conn. submitted in House Document No. 49, 73rd Congress, 1st Session with particular reference to the improvement of navigation facilities at and in the vicinity of Essex, Connecticut."

2. The Chief of Engineers by letter dated 27 February 1959 assigned a review report to the New England Division Engineer.

3. The report under review was submitted by the District Engineer, Providence, Rhode Island, on 26 September 1932. It recommended improvement of the Connecticut River from its mouth to Hartford, Connecticut. The recommended improvement consisted of a channel 300 feet wide and 15 feet deep to the Old Lyme railroad bridge, thence generally 150 feet wide and 15 feet deep to Hartford. This report formed the basis for the existing project for the Connecticut River below Hartford.

PURPOSE AND EXTENT OF SURVEY

4. The present study considered the engineering and economic justification of small boat navigation improvements in the Connecticut River at and in the vicinity of Essex, Connecticut. A detailed hydrographic

survey was made to determine existing channel depths and the volume of shoaled materials to be dredged. The use of this waterway and other harbors in the vicinity was studied to ascertain the adequacy of present facilities and the need for additional navigational improvements. A public hearing was held at the Essex Town Hall on 23 February 1960 to give local interests an opportunity to express their views on possible improvement of the Connecticut River at Essex. The views expressed at this hearing and at later conferences with state and local interests, all affirming the need for additional navigation improvements at Essex, are summarized under the heading "Improvement Desired." Available maps, charts and aerial photographs were studied and local contacts were made to obtain data.

DESCRIPTION OF NAVIGATION CONDITIONS

5. The main anchorage area at Essex consists of an open roadstead at the west side of the existing 15-foot Federal channel (Essex Shoal Channel) of the Connecticut River, where the river makes a sharp eastward bend about 6 miles north of the mouth at Old Saybrook. Roughly trapezoidal in shape, the anchorage has an average length of about 4,000 feet and an area of about 70 acres. Depths range from 7 to 14 feet in the northern section and from 6 to 11 feet in the southern section. Local interests maintain that the anchorage, particularly the natural channel area immediately off the central village waterfront, has shoaled at a rapid rate since commercial traffic was rerouted from the natural waterfront channel to the midstream Essex Shoal Channel. In the past few years medium- and deep-draft recreational boats have scraped with increasing frequency on a broad sandbar in the southwestern section of the anchorage. Depths in the natural waterfront channel, presently ranging from 9 to 12 feet, are roughly one-half as deep as before the midstream Essex Shoal Channel was enlarged in 1937 to its present project size of 15 feet deep and 150 feet wide. Previously, a 12-foot deep channel had existed off Essex Shoal which had been maintained since 1912 as a Federal channel 12 feet deep and 100 feet wide.

6. Three shallow coves indent the village waterfront generally west of the anchorage. North Cove, largest of these three inlets, is separated by Essex Island from the north side of the anchorage. Natural discharge of the Falls River, the principal stream draining the township, has cut a channel 9 to 22 feet deep along the west side of this 2-foot deep cove. Local dredging has been done by boatyard operators near the cove entrance.

7. Due west of the anchorage is Middle Cove, with its narrow entrance between the central waterfront and Thatchbed Island. A 6-foot channel is privately maintained in the entrance area and on the south side of this shallow silt-filled cove.

8. Second largest of the three inlets is South Cove, which is separated by Thatchbed Island from the southwest side of the anchorage. Depths in most of this sheltered cove range from 2 to 4 feet and decrease to 1 to 3 feet in its entrance between Thatchbed Island and Hayden Point.

9. The mean and spring tidal ranges at Essex are 2.7 and 3.3 feet, respectively. Extreme low tides of minus 2.5 feet have been recorded. The area is shown on U. S. Coast and Geodetic Survey Chart No. 215, on the Army Map Service Essex Quadrangle, and on the maps accompanying this report.

TRIBUTARY AREA

10. The immediate tributary area is the town of Essex in which the anchorage and three coves are located. Essex is a well-known summer resort and yachting center. It has residential centers at the waterfront village of Essex and at Centerbrook and Ivoryton along the Falls River. Each community has a well-diversified group of small industrial and local retail firms. Historically a prosperous shipbuilding port, the village of Essex has the most extensive marine facilities on the Connecticut River. The population of the town was 4,057 in 1960, and its assessed valuation in 1959 was \$16,269,500.

11. The upstream towns of Deep River and Chester, with a combined population of 5,488 in 1960, have a close regional association with Essex. Although both towns have expanding waterfront facilities, a number of boatowners in both towns prefer to berth their boats at the somewhat deeper draft facilities at Essex.

BRIDGES AFFECTING NAVIGATION

12. There are no bridges in the anchorage or cove areas. Access to the commercial marina at the southern end of Essex Island is by taxi boat service.

13. Two fuel pipelines and a submarine telephone cable, servicing the Essex Island Marina, cross underneath the entrance to North Cove. These lines are buried at elevations of about 4 and 15 feet, respectively, below the natural river bottom.

PRIOR REPORTS

14. The Connecticut River below Hartford has been subject to several navigation studies, including the report under review. Tabulated below are the most recent navigational studies on the river:

<u>Scope and Date of Report</u>	<u>Work Considered</u>	<u>Recommendation</u>
Letter report of 23 March 1961 to Chief of Engineers by Division Engineer, New England Division	Entrance channel 6 feet and 60 feet wide into Wethersfield Cove. Provision of 30-acre anchorage 6 feet deep.	Recommended no action necessary by Congress, as project was adopted by the Chief of Engineers on 15 November 1960 under authority of Section 107 of the 1960 River and Harbor Act.
Survey published in House Document 666, 80th Congress, Second Session	Incorporation of the Eight Mile River project into the Connecticut River project. Provision of 8-foot channel and turning basin in Eight Mile River and additional anchorage in the upper cove at Hamburg.	Favorable
Preliminary Examination and Survey published in House Document 368, 76th Congress, First Session	Entrance channel 100 feet wide, 12 feet deep into North Cove. Provision of anchorage facilities in North Cove, 12 acres with 11-foot depth, 17 acres with 6-foot depth.	Favorable
* Survey published in House Document 49, 73rd Congress, First Session	Channel 15 feet deep, 300 feet wide to Old Lyme Railroad Bridge thence 150 feet wide to Hartford. Construction of dikes and training structures.	Favorable

* Report under review.

EXISTING CORPS OF ENGINEERS PROJECT

15. The existing project for improvement of the Connecticut River below Hartford, Connecticut, was adopted by Congress in 1872 and modified by Acts of Congress in 1881, 1911, 1919, 1935, 1945 and 1950. The project was further modified in 1961 by the Chief of Engineers, under authority of Section 107 of the 1960 River and Harbor Act. The project provides for:

- a. A channel 15 feet deep, 300 feet wide from the mouth of the river to Lyme Railroad Bridge, thence 15 feet deep, generally 150 feet wide to Hartford. Length about 52 miles.
- b. A channel 11 feet deep, 100 feet wide from deep water in the river to the anchorage in North Cove. Length about 1,900 feet.
- c. Two anchorages 6 feet and 11 feet deep in North Cove.
- d. Two riprap jetties at the mouth of the river.
- e. The construction of dikes, training walls, revetments and accessory works.
- f. A training dike about 3,700 feet long at Hartford.
- g. A channel 8 feet deep and 75 feet wide in Eight Mile River from the Connecticut River to Hamburg and a turning basin of the same depth, 150 feet wide and 300 feet long at Hamburg and an anchorage area at Hamburg, 6 feet deep and about 6.5 acres in area.
- h. A channel 6 feet deep, 60 feet wide and 1,200 feet long from the Connecticut River into Wethersfield Cove and a 30-acre anchorage in the cove, 6 feet deep.

16. The existing project is about 80% completed. Federal costs to 30 June 1960 were \$861,984 for new work and \$2,833,722 for maintenance. To complete the project there remains the construction of additional permanent works, dredging the channel and anchorage in North Cove at Old Saybrook, dredging the 6-foot anchorage in Eight Mile River at Hamburg, and dredging the channel and anchorage in Wethersfield Cove. With the exclusion of additional permanent works and the work in Eight Mile River which are considered to be inactive, the Federal cost to complete the project is estimated at \$713,500 (June 1961).

17. The Essex Shoal Channel, located midstream on the Essex-Lyme town line opposite the central Essex waterfront, was enlarged to its present project size as part of a 1935 modification of the Federal project for the Connecticut River below Hartford. There is no authorized Federal navigation improvement in the immediate Essex waterfront area.

LOCAL COOPERATION ON EXISTING AND PRIOR REPORTS

18. The River and Harbor Act of 30 August 1935 authorized the 15-foot channel to Hartford together with dikes, revetments, and training walls subject to the provision that local interests furnish free of cost to the United States suitable areas for dredged materials during initial construction and for future maintenance, when and as needed, and hold and save the United States free from damage that may result from the construction works or subsequent maintenance. Local interests have complied with this requirement. The River and Harbor Act of 2 March 1945 authorized the channels and anchorage in North Cove subject to the provision that local interests contribute in cash 50 percent of initial construction costs not to exceed \$67,500 and provide a public landing estimated to cost \$13,000. The River and Harbor Act of 17 May 1950 authorized the channel, basin and anchorage in Eight Mile River subject to the provision that local interests provide adequate public landing facilities, suitable spoil disposal areas, when and as needed, and contribute in cash 50 percent of initial construction costs not to exceed \$18,000. The Wethersfield Cove channel and anchorage project has been adopted subject to requirements of local cooperation, including said contribution presently estimated at \$47,000 (June 1961) and including requirements that local interests furnish suitably diked spoil disposal areas, maintain a public landing and hold the United States free from damages. As funds for the North Cove and Wethersfield Cove parts of the project have not been appropriated, these requirements of local cooperation have not been met. It is anticipated the requirements will be met on demand. Although Federal funds were appropriated for dredging of the Eightmile River portion of the project in 1956, local interests failed to meet the requirements of local cooperation, and therefore this part of the project has been declared inactive.

OTHER IMPROVEMENTS

19. The Town of Essex maintains three right-of-way where outboard boats can be launched, two on the southwest side of North Cove and the third on the west side of Middle Cove. The Town also maintains a small public landing for larger boats and a launching area on the west side of the open anchorage, which are located at the foot of Main Street near the northern end of the central waterfront area. The Essex Marine Railway Corporation, at the head of Middle Cove, has periodically dredged an approach channel along the south side of Middle Cove which connects several dock and service areas at the western end of the cove with the main river.

TERMINAL AND TRANSFER FACILITIES

20. There are 4 large boatyards and 3 marine service docks at Essex which have extensive facilities where gasoline, oil, water and other supplies can be obtained. These firms provide 9 marine railways with capacities up to 125 tons, covered storage facilities for about 300 boats, and slips for about 250 medium-to-deep-draft pleasure boats. Additional berthing facilities, primarily for small boats, are available at the three cove areas, at the Pettipaug Yacht Club about 1.5 miles north of the harbor opposite Brockway Island, and at the Essex and Dauntless Yacht Clubs near the southern end of the central waterfront area. The Cruising Club of America maintains headquarters at the Essex Yacht Club.

21. Mooring facilities and launch service are available in the open anchorage area. The Town provides supervision of the port by a harbor master, as well as police and fire protection. Hotel and restaurant accommodations are located near or along the waterfront.

IMPROVEMENT DESIRED

22. A public hearing was held at the Essex Town Hall on 23 February 1960 to determine the type and extent of improvement desired by local interests and to give interested parties an opportunity to express their views. The hearing was attended by 55 persons, including representatives of Federal, state and local governments and recreational and yachting interests.

23. A harbor committee, composed of local officials and yachting and commercial interests, described local conditions and proposed the following improvements so that the harbor could accommodate an expanding local fleet and continue to attract deep-draft recreational boats:

a. The approach from the existing 15-foot Federal channel near the Essex Reef Light has shoaled to a depth of 6 feet and should be dredged to a depth of 10 feet and extended to the west side of the natural channel which runs close along the central Essex waterfront. The approach channel should then follow the natural waterfront channel generally northward of the entrance to North Cove and rejoin the main channel off Essex Island.

b. The present anchorage area between the existing 15-foot Federal channel and the natural waterfront channel should be dredged to a depth of 10 feet. Shoaling of the anchorage, particularly at the southwestern end where present depths are only 6 feet at mean low water, has caused an increasing number of boats to scrape on the river bottom in recent years and has restricted the mooring area preferred by sailboat owners. A strong 3-knot current flowing from North Cove deters

most sailboat owners from using the northern part of the anchorage and causes powerboat owners to anchor at wider intervals than commonly used in protected anchorage areas. The existing approach channel is considered inadequate for convenient access to the central waterfront area. Continued shoaling will seriously limit access to decks at the southern end of the waterfront.

24. All persons attending the hearing, as well as all those presenting letters, agreed that the above improvements were essential to continued development of the port. State fish and game interests strongly supported improvement of the port, but cautioned against filling in marsh areas now frequented by water fowl.

EXISTING AND PROSPECTIVE COMMERCE

25. There is no significant commerce in the waterway at the present time. Other than chartered fishing excursions, local interests have indicated that little or no commercial traffic is anticipated in the waterfront area.

VESSEL TRAFFIC

26. Vessel traffic in the anchorage and cove areas is limited to recreational boating. The existing recreational fleet includes about 108 small outboards and inboards, 281 cruisers, 2 charter cruisers and 118 sailboats and auxiliary sailboats. Estimating that each of these 509 boats would average a trip each week for a season of about 150 days, the total trips by both home-based and transient boats would number about 11,000 annually. The type, size, number and value of boats comprising the present home fleet are shown in Table I.

TABLE I

COMPOSITION OF ESSEX RECREATIONAL FLEET

Type of Craft	Length (feet)	Number of Craft	Total Depreciated Present Value
Outboards	20 or less	70	\$ 42,000
Inboards	20 or less	38	34,200
Cruisers	15-30	62	248,000
	31-50	202	1,818,000
	51-60	17	680,000
Sailboats	20 or less	60	39,000
Auxiliary Sails	15-30	11	33,000
	31-40	33	280,500
	41-60	14	140,000
Charter Cruisers	31-50	1	20,000
	51-100	1	60,000
Total		509	\$3,394,700

DIFFICULTIES ATTENDING NAVIGATION

27. The principal navigation difficulties at Essex stem from shoaling which has occurred in the Connecticut River between the existing 15-foot Federal channel and the natural waterfront channel. Shoaling has also occurred in the natural waterfront channel, particularly at the southwestern end off Thatchbed Island. In recent years, deep-draft yachts have suffered an increasing number of scuffing accidents when crossing a 3-acre shoal area about 500 feet off the entrance to Middle Cove, where a sandbar reduces minimum depths to about 6 feet at mean low water. Sedimentation throughout the anchorage area has contributed to numerous boats rubbing against their mooring anchors during low tide periods.

WATER POWER AND OTHER SPECIAL SUBJECTS

28. Water power or flood control matters are not pertinent to this tidewater roadstead. Local interests have reported that pollution has been a problem in Middle Cove due to sluggish tides. It is considered that the Federal navigation improvement would not have any noticeable effect on this pollution.

29. The Fish and Wildlife Service of the United States Department of the Interior has been consulted as to possible effect on fish and wildlife. Their report is contained in Appendix B. They have indicated that the navigation improvement will have no adverse effect on fish or wildlife if the dredged material is placed as fill in the central part of Nott Island, an area customarily used during Connecticut River maintenance dredging operations. State and local interests have expressed objections to using Essex and Thatchbed Islands as spoil areas because of possible detrimental effects on fish and wildlife feeding areas.

PLAN OF IMPROVEMENT

30. Local interests requested that the area between the existing 15-foot Federal channel and the Essex waterfront be dredged to a depth of 10 feet at mean low water. Also desired was an approach channel along the southwest side of the anchorage, which would extend from the existing 15-foot Federal channel off Essex Reef northwestward to the central Essex waterfront and rejoin the main channel generally northward of the entrance to North Cove. Maximum shoaling within the anchorage area has occurred as an offshore bar about 500 feet east of the southern end of the waterfront. Controlling depths range from about 6 feet in the area outside the entrance to Middle Cove to about 7.5 feet in the area outside the entrance to North Cove.

31. The current fleet consists of approximately 509 recreational boats, including 2 charter boats. Of these boats, about 215 are cruisers, sailboats and auxiliary sailboats which moor or anchor in the open anchorage. It is anticipated that the prospective fleet will total about 580 boats, including additions to the fleet and transient boats. A minimum of 250 boats would be expected to use the open anchorage. The maximum draft of these boats would be about 8.5 to 9.0 feet.

32. Alternate improvements considered in the roadstead area consisted of an approach channel 10 feet deep and 100 feet wide, which would extend from the main ship channel off Essex Reef to the central Essex waterfront, follow the natural waterfront channel to the entrance to North Cove, and then return generally eastward to the main ship channel. Various anchorages were also studied, with some dredged in their entirety to depths of 10 feet and others dredged partially at 10 feet and the remaining area at 8 feet.

33. Construction of marina facilities in Middle Cove and in North Cove were considered as alternative measures to dredging an open anchorage off the central waterfront. In the consideration of alternative marina facilities, only limited allowances were made for powerboats less than 20 feet long. The present vigorous rate of small pier development in all three Essex coves is indicative that facilities for small powerboats will continue to be satisfactory. Middle Cove was considered to have insufficient capacity, in addition to the area now being used for dock facilities at the western end of the cove, to accommodate the needs of the prospective Essex fleet.

34. The area on the southwest side of North Cove between the Dauntless Shipyard and the Riverview Cemetery was considered to be the most feasible site for marina construction of sufficient size to serve the future Essex fleet. This site is located near the existing deep natural channel which follows the west side of the cove and is accessible on the west by several residential streets. Offsetting these favorable factors, local interests have stated that no sailboats and only a limited number of auxiliary sailboats would berth at a marina in the North Cove area. A 3-knot river current near the North Cove entrance and the preferability of ready access to the Connecticut River fairway area would deter sailboat owners from using North Cove marina facilities.

35. Construction of a low-cost 150-boat marina, consisting of wooden ramps and marginal piers, short inexpensive piles, and floating runways and finger piers, is estimated as having a minimum cost of \$55,000. Costs for dredging the presently shallow, possible marina area 8 feet deep and enlarging the natural channel to provide an approach 100 feet wide and 8 feet deep are estimated as \$85,000. Thus, the total cost of dredging and constructing an 150-boat marina and an

approach channel in North Cove is estimated at \$140,000. The cost per boat for providing minimum but adequate marina facilities at North Cove would average about \$930 per boat. The cost per boat for providing the open anchorage under consideration off the central Essex waterfront would average about \$450 per boat. Comparison of the resultant \$930 cost per boat for minimum marina construction, including necessary dredging, with the cost of only \$450 per boat for dredging a 34-acre open anchorage indicates that marina-type facilities would not serve the needs of the prospective Essex fleet as economically as an open anchorage.

36. A plan of improvement has been selected which represents a logical development of the harbor in keeping with specific local desires, current and anticipated use of the harbor, and the maximum draft of boats expected to use the roadstead area. The selected plan of improvement would provide:

a. An approach channel 10 feet deep and generally 100 feet wide, which would extend northwesterly from the existing 15-foot Federal channel off Essex Reef to the entrance to Middle Cove, then continue northward about 150 feet off existing structures at the southern end of the central waterfront and 200 feet off the northern end of the central waterfront, and then return along the east side of Essex Island to the existing 15-foot Federal channel near the northern end of Essex Shoal;

b. An anchorage of about 15 acres 10 feet deep in the southern half of the area bounded by the two channels;

c. An anchorage of about 19 acres 8 feet deep in the northern half of the area bounded by the two channels. The location of the anchorage was determined by the location of the waterfront access channel, and by the need for keeping anchored or moored boats a safe distance away from the existing Essex Shoal Channel.

SHORELINE CHANGES

37. The improvements desired by local interests will have no adverse effect on adjacent shorelines.

AIDS TO NAVIGATION

38. The United States Coast Guard maintains buoys along the existing 15-foot Federal channel and a beacon light and buoy in the Essex Reef area. No lights or buoys are maintained in the three existing special anchorage areas off the Essex waterfront, and only those boats exceeding 65 feet in length are required to show anchor

lights. Local interests have provided piles to mark the entrance to Middle Cove. However, these piles are located inshore of the improvement area and would not interfere with construction of the project.

39. The Coast Guard has been consulted and has advised that 6 additional aids to navigation will be required. These 6 new buoys would have an estimated first cost of \$4,000 and annual maintenance costs of \$400.

ESTIMATES OF FIRST COST

40. An estimate of the first cost of the improvement considered in this report is based on price levels prevailing in June 1961. Quantities have been estimated, based on a survey made in March 1960, and provide for dredging to the proposed project depths plus an allowance of one foot for overdepth and side slopes of one vertical to three horizontal. It is considered that the shoaled sand material, with minor silt, will be removed hydraulically and the spoil deposited on Nott Island.

41. The estimated first cost of the improvement including contingencies is shown below. Detailed costs are shown in Appendix A.

Project Construction

Dredging Channel and Anchorage	\$ 93,000
Engineering and Design	7,000
Supervision and Administration	<u>12,000</u>
Cost	\$112,000
Preauthorization Study	<u>7,000</u>
Project Cost	\$119,000
Aids to Navigation	<u>4,000</u>
Total First Cost (June 1961)	\$123,000

In addition, it is estimated that improvement of existing public landing facilities will cost local interests a minimum of \$4,000, but this cost is considered to be self-liquidating, and therefore not an economic cost to the project.

ESTIMATES OF ANNUAL CHARGES

42. Estimates of the annual charges have been computed using a project life of 50 years. The Federal interest rate is 2.625 percent. The interest rate for the non-Federal investment is taken at 3.5

percent, a rate considered reasonable for the State of Connecticut which will pay one-quarter of the estimated cost of improvements and will advance an equal amount to be repaid by the Town of Essex.

43. Channel and anchorage maintenance costs are based on estimated shoaling rates and a review of all hydrographic surveys made since construction of the existing 15-foot Federal channel. Maintenance dredging will be required periodically to assure project depths, notably at the southwestern end of the anchorage. This work could be accomplished in conjunction with the regular maintenance of the Connecticut River channel.

Federal Annual Charges

Interest and Amortization (0.03614) (\$63,000)	\$2,300
Maintenance Dredging (3,000 c.y./yr.)	3,700
Maintenance of Navigation Aids	<u>400</u>
Federal Annual Charges	\$6,400

Non-Federal Annual Charges

Interest and Amortization (0.04263) (\$56,000)	\$2,400
Total Annual Charges (June 1961)	\$8,800

ESTIMATES OF BENEFITS

44. Recreational Benefits. Improvement of the Connecticut River at Essex would result in substantial benefits to the existing and prospective recreational fleets. These benefits would be shared by both the local and transient fleets. Benefits to the existing local fleet would result from increased use of the roadstead and reduction of boat damage. Benefits would accrue to the prospective recreational fleet by provision of easier access to the waterfront and additional anchorage space which would encourage immediate expansion of the fleet.

45. Benefits for recreational boats have been computed on the basis of the net annual return to the owners, computed on the same basis as if the boats were for hire. In general, the net return of a boat varies with its type and size, and is expressed in terms of a percentage of its average depreciated value. The ideal net return is the maximum that could be attained with full unrestricted use of the roadstead. In the Essex area the ideal net return varies from 12 percent for the smaller boats to 7 percent for the larger boats, with the exception of the charter boats which could obtain a 15 percent return. The value of the net return entailed consideration of the

extent that deficient navigational and anchorage conditions affected each type of boat. Computation of the benefits considered the difference between present use of the roadstead and the increased use that could be achieved after improvement.

46. The existing locally based fleet consists of approximately 507 pleasure boats and 2 charter boats used for recreational purposes. About 108 of these boats are small outboards and inboards which are largely berthed in the three cove areas. Approximately three-fifths of the 281 cabin cruisers in the fleet are based in the North Cove entrance area. Most of the remaining cruisers, predominantly in the 30- to 50- foot class, anchor in the northern part of the roadstead area. The majority of the boats anchoring in the southern part of the roadstead area are deep-draft auxiliary sailboats and small sailboats. The relatively calm waters off the east side of Thatchbed Island are also actively used for mooring small sailboats. A small group of sailboats in the Essex area is associated with the Pettipaug Yacht Club, about 1.5 miles north of the central waterfront. These are tallied as transient craft which frequently visit the central waterfront area.

47. Approximately 215 boats in the Essex home fleet, consisting of cabin cruisers, auxiliary sailboats and small sailboats, moor or anchor within 1,500 feet of the central waterfront in the roadstead at the west side of the Connecticut River where the river makes a sharp eastward bend opposite the Essex waterfront. In recent years boatowners approaching the southern end of the central waterfront have reported an increasing number of incidences of scraping on the sandbar in the southern part of the roadstead. It is expected that the improvement recommended will allow full unrestricted use of the Connecticut River in the vicinity of the central Essex waterfront, and annual benefits have been evaluated on this basis. Estimated annual benefits for the existing fleet amount to \$6,500 as shown in Table II.

48. In the past, most of the boats that scraped on the sandbar experienced only minor keel damages which were usually repaired during winter overhaul operations. However, several boats each year have suffered significant keel or propeller damage from such accidents, and losses of this type will likely increase as the roadstead continues to shoal. Annual damages from grounding accidents, including both emergency summer repairs and increased winter overhauling costs total about \$250. Equally common are damages incurred by boats settling against their moorings during low water periods. Some owners have reported losses of about \$500 from such accidents, but information from local interests and insurance companies indicates that the average damage to boats settling against their moorings, has been about \$350 annually. Approximately 80 percent of the total

TABLE II

Benefits to Existing Anchored Fleet

Type of Craft	Length (Feet)	No. of Boats	Depreciated Value		Per Cent Return				Value \$	On-Cruise (150-day Season)		
					% of Ideal					Avg. Days	% of Season	Value \$
			Average	Total	Ideal	Pres.	Future	Gain				
Recreational Fleet												
Cruisers	15-30	11	\$ 4,000	\$44,000	9	95	100	0.5	220	22	15	30
	31-50	89	9,000	801,000	8	95	100	0.4	3,200	30	20	640
	51-60	5	40,000	200,000	8	90	95	0.4	800	35	25	200
Aux. Sail	15-30	9	3,000	27,000	9	90	100	0.9	240	15	10	20
	31-40	30	8,500	255,000	8	80	90	0.8	2,040	25	15	310
	31-60	11	10,000	110,000	8	70	90	1.6	1,760	35	25	440
Sailboats	10-20	60	650	39,000	12	100	100	-	-	-	-	-
Totals		215		\$1,476,000					\$8,260			\$1,740
Total Benefits			= \$8,260 - \$1,740 = \$6,520			Say, \$6,500						

TABLE III

Benefits to Existing Equivalent Transient Fleet

<u>Recreational Fleet</u>												
Cruisers	15-30	1	\$ 4,000	\$ 4,000	9	95	100	0.5	20	-	-	-
	31-50	5	9,000	45,000	8	95	100	0.4	180	-	-	-
	51-60	2	40,000	80,000	8	90	95	0.4	320	-	-	-
Aux. Sail	15-30	1	3,000	3,000	9	90	100	0.9	30	-	-	-
	31-40	2	8,500	17,000	8	80	90	0.8	140	-	-	-
	41-60	1	10,500	10,500	8	70	90	1.6	170	-	-	-
Sailboats	10-20	4	650	2,600	12	100	100	-	-	-	-	-
Totals		16		\$162,100					\$860	Say, \$900		

Benefits to Transferred Boats

16

Benefits to New Boats

Recreational Fleet													
Outboards	10-20	3	600	\$ 1,800	13	-	-	-	-	-	-	-	-
Inboards	10-20	2	900	1,800	11	-	-	-	-	-	-	-	-
Cruisers	15-30	3	4,000	12,000	9	0	100	9.0	1,080	22	15	160	
	31-50	7	9,000	63,000	8	0	100	8.0	5,040	30	20	1,010	
Aux. Sail	31-40	1	8,500	8,500	8	0	90	7.2	610	25	15	90	
	41-60	1	10,000	10,000	8	0	90	7.2	720	35	25	180	
Sailboats	10-20	2	650	1,300	12	-	-	-	-	-	-	-	
Totals		19		\$98,400					\$7,450				\$1,440
Total Benefits = \$7,450 - \$1,440 = \$6,010 Say, \$6,000													

annual loss of \$600 resulting from grounding and mooring accidents would reasonably be eliminated by channel and anchorage improvements. Thus the benefits resulting from reduction of boat damages incurred at Essex in the Connecticut River roadstead area would amount to about \$500 annually.

49. Noted in the past for its extensive marine service facilities located only about 6 miles from the mouth of the Connecticut River, its good anchorage and its picturesque colonial village, the Essex waterfront attracts many yachtsmen during the cruising season. It is estimated that an average of about 6 boats a day visit the Essex waterfront for a 2-day stay. These visits would amount to about 1,800 boat-days during the boating season or the equivalent of 12 locally based boats. In addition to the large cruisers and auxiliary sailboats that comprise most of the transient fleet, it is estimated that an average of about 17 sailboats from the Pettipaug Yacht Club, located about 1.5 miles north of the roadstead, visit the central Essex waterfront twice each week. Based on a slightly shorter 18-week season for the yacht club, these visits would slightly exceed 600 boat-days or the equivalent of 4 locally based boats. Visits of all types amount to about 2,400 boat-days or the equivalent of 16 locally based boats. Benefits for visiting craft have been computed on the same basis as the local fleet and amount to about \$900 as shown in Table III. Although a small number of slips are often available for brief visits by transient craft, mooring facilities for transient craft are generally limited to temporary use of moorings normally assigned to locally based boats which are away on cruise or being repaired. Information from local boatyard operators indicates that an average of about 29 boats in the existing anchored fleet is normally away on cruise.

50. After channel and roadstead improvements it is anticipated that the transient fleet will increase by at least 60 percent. Benefits from this source are estimated as about six-tenths the benefits of the existing transient craft, or about \$500 annually.

51. A 10 percent annual growth in the past several years has filled the roadstead area to its safe capacity without having moorings too close to the Essex Shoal Channel used by commercial ships. Local interests believe that continued shoaling in the next 5 or 6 years will discourage transient craft from visiting Essex and will so limit use of the Connecticut River roadstead area that deeper draft recreational boats will move to deepwater ports. Although the future Essex growth pattern is not readily ascertainable if shoaling conditions continue unchecked, it appears that the loss of deeper draft boats would not be equally offset by an increase in shallow draft boats which are relatively unaffected by present shoaling conditions. However, with improvement of the Essex roadstead area it is anticipated

that 47 boats would be immediately attracted by the improved and enlarged anchorage. Sixty percent of these additions to the fleet would likely be transferred cabin cruisers, inboards and auxiliary sailboats which would prefer to base at Essex after channel and anchorage improvements are made. About 40 percent of these additions would be new boats ranging from small outboards to large auxiliary sailboats.

52. It is estimated that approximately 28 boats would transfer to Essex after improvement of existing navigation conditions. Included in this group would be several large boats which were formerly based at Essex whose owners had shifted to other deepwater ports because of deteriorating navigation conditions at Essex. Benefits for these boat transfers would total about \$700 as computed in Table IV.

53. Improvement of the roadstead area would provide a safe anchorage capacity for a maximum of about 252 boats. In view of an existing fleet of 215 boats and a conservative estimate that 23 boats would transfer immediately to the improved anchorage at Essex (excluding shallow draft boats which would likely berth in one of the Essex cove areas), it is considered that the enlarged anchorage would provide for only 14 new boats. This figure is somewhat smaller than the annual number of new boat additions that occurred during the past several years before shoaling curtailed the annual growth in the number of boats mooring in the roadstead area. It is conservatively estimated that 19 new boats would be attracted by the Essex improvement, including 5 small outboards and inboards which would not normally anchor in the roadstead area. No benefits have estimated for the 7 new outboards, inboards and small sailboats expected to join the Essex fleet immediately after improvements are made, as these smaller boats are not seriously inconvenienced by present shoaling conditions. Benefits for new boat conditions amount to about \$6,000 annually as shown in Table V.

54. Land Enhancement. It is anticipated that all of the spoil material from construction and maintenance of the improvement will be placed on Nott Island near the opposite side of the river. State and local officials have indicated objections to the use of Thatchbed or Essex Islands, which both front on the improvement area, for the disposition of hydraulic fill. Other areas, such as an inactive, open sandpit near the mouth of the Falls River at the northwestern end of North Cove, were considered and rejected as possible spoil areas. The Nott Island spoil disposal area, an area near the center of the island which is customarily used during Connecticut River maintenance dredging operations, was found to provide the most favorable conditions of the areas available for the disposition of spoil material. In view of the relative inaccessibility and marginal value of this low-lying, scrub-covered island, it is considered that no land enhancement should be credited to the improvement.

55. Summary of Benefits. The total evaluated annual benefits to the improvement are estimated as \$15,100. It is considered that these benefits to recreational navigation are 50 percent general and 50 percent local in nature. These benefits are summarized in Table VI below:

TABLE VI

SUMMARY OF ANNUAL BENEFITS

Benefits from Increased Recreational Use of the:	<u>General</u>	<u>Local</u>	<u>Total</u>
Existing Recreational Fleet	\$3,250	\$3,250	\$ 6,500
Existing Transient Fleet	450	450	900
Attracted Transient Boats	250	250	500
Attracted Transferred Boats	350	350	700
Attracted New Boats	3,000	3,000	6,000
Reduction in Damage to Existing Recreational Fleet	<u>250</u>	<u>250</u>	<u>500</u>
Total Benefits	\$7,550	\$7,550	\$15,100
Percent	50%	50%	100%

COMPARISON OF BENEFITS AND COSTS

56. The considered Federal project for the Connecticut River at Essex, with evaluated annual benefits of \$15,100 and estimated annual charges of \$8,800, would have a benefit-cost ratio of 1.7.

PROPOSED LOCAL COOPERATION

57. The benefits, which would accrue from dredging the access channel and anchorage, are 50 per cent general and 50 per cent local in nature. Since the general and local benefits are of equal proportions, local interests should be required to contribute in cash 50 per cent of the general navigation construction costs, exclusive of aids to navigation. This local cash contribution is estimated at \$56,000.

58. The present public landing maintained by the Town at the foot of Main Street is inadequate for most deep-draft boats which frequent the Essex waterfront. It is considered that modification of the present landing, to provide a berthing depth of 8 feet at mean low water, would be required to assure full public use of the improvement. Although the cost of dredging an access 8 feet deep to the present landing is estimated at about \$3,000, as compared with an estimated \$4,000 initial cost for an 80-foot float extension, frequent maintenance dredging would cause total dredging costs to exceed construction and maintenance costs of a float extension. Local interests plan also to consider various combinations of dredging and short float extensions.

59. Local interests should provide, without cost to the United States, all lands, easements, rights-of-way, spoil disposal areas, and spoil retaining dikes or bulkheads necessary for construction and maintenance of the project, when or as required. They should also hold and save the United States free from damages which may result from construction and maintenance of the project.

APPORTIONMENT OF COSTS AMONG INTERESTS

60. Boating at Essex is limited to recreational boats and charter boats used exclusively for recreational purposes. The benefits which would accrue from navigation improvements at Essex are wholly recreational benefits, which are considered 50 per cent general and 50 per cent local in nature. Federal participation is limited to 50 per cent of the construction cost of the general navigation facilities, plus the cost of preauthorization studies and cost of aids to navigation. Local interests would be required, therefore, to make a cash contribution of 50 per cent of the first cost of constructing the general navigation facilities and meet the local cooperation requirements. Enlargement or improvement of present facilities by local interests to provide an adequate landing would require a local expenditure estimated at \$4,000.

The apportionment of first costs is shown below:

Federal Investment

Corps of Engineers:	
General Navigation Facilities (0.50) (\$112,000)	\$56,000
Preauthorization Studies	7,000
Coast Guard:	
Navigation Aids	<u>4,000</u>
Total Federal Cost	\$67,000

Non-Federal Investment

Cash Contribution:	
General Navigation Facilities (0.50) (\$112,000)	\$56,000
Local Landing Improvements	<u>4,000</u>
Total Non-Federal Cost	\$60,000

COORDINATION WITH OTHER AGENCIES

61. All Federal, State, and local agencies having an interest in the improvement were notified of the public hearing held at the Essex Town Hall on 23 February 1960. Representatives and officials of the State of Connecticut, the Town of Essex, the U. S. Fish and Wildlife Service, and the U. S. Coast Guard, and interested local residents have been consulted concerning the effects of the proposed improvements on their activities. State and local interests have indicated that the proposed requirements of local cooperation would be met.

62. The Fish and Wildlife Service has advised (see Appendix B) that the improvement under consideration will have no adverse effect upon either fish or wildlife, provided the dredged spoil is placed on Nott Island or efficient bulkheads are erected if a limited quantity of hydraulic fill is placed in the Essex Island area. Local officials have cautioned against filling in the small water gap between Essex Island and the large spit immediately to the north as the gap permits some release of tidal water impounded in North Cove.

63. The Coast Guard has furnished information on the installation and maintenance costs for six additional navigation aids, which are considered the minimum requirements to mark the improvement under consideration at Essex.

DISCUSSION

64. The Connecticut River at Essex, in addition to its main waterway, provides a roadstead area and three sheltered coves along its west bank. Located about six miles north of the river mouth at

Old Saybrook, the waterfront village of Essex is noted as a summer resort and yachting center. The natural access channel and anchorage areas along the waterfront have shoaled at a rapid rate in recent years. Local interests are concerned that the existing fleet of large sailboats and yachts will be forced to transfer to other deepwater ports and that the steady expansion of marine service facilities will be restricted.

65. There is no authorized Federal navigation improvement in the immediate Essex waterfront area. The Essex Shoal Channel, located midstream about 1,200 feet east of the central Essex waterfront, was enlarged to its present 15-foot depth as part of a 1935 modification of the existing Federal project for the Connecticut River below Hartford. Local interests maintain that construction and enlargement of the Essex Shoal Channel, which bypasses the deep, natural channel along the outside (west) bank of the river where it makes a sharp eastward bend at Essex, is the primary reason for the natural waterfront channel having shoaled to half its former depths. Present navigation is limited by inadequate depths in the southern part of the natural waterfront channel and by insufficient anchorage in the roadstead for the expanding recreational fleet. Continued use of the area by deep-draft recreational boats will be seriously restricted unless the roadstead is improved. All improvements desired by local interests have been studied and discussions have been held periodically with local officials. A plan of improvement has been selected which represents a logical development of the roadstead, compatible with local desires and present and anticipated needs. This improvement would provide an approach channel 10 feet deep and generally 100 feet wide from the existing 15-foot Federal channel to the central Essex waterfront and return around the perimeter of an anchorage area, of which the northern section of about 19 acres would be dredged 8 feet deep and the southern section of about 15 acres would be dredged 10 feet deep.

66. Construction of the project would cost an estimated \$112,000, which would be shared equally by local interests and the United States. Other Federal costs of \$11,000 would include \$7,000 for preauthorization studies and \$4,000 for additional aids to navigation. Other non-Federal costs are estimated at \$4,000 for improvement of an existing public landing. The total project cost is estimated at \$123,000 (in June 1961). The State of Connecticut has enacted legislation whereby the State will pay one-quarter of the estimated cost of improvements and will advance an equal amount, on a 20-year reimbursement basis, to cover the Town's share of the required cash contribution.

67. This improvement would benefit local and transient recreational craft by reducing boat damages and increasing the use of the existing roadstead. It would induce the immediate addition of both new boats and transferred boats to the fleet and encourage expansion of boating at Essex. Total annual benefits are \$15,100, which when compared with annual charges of \$8,800 indicates a benefit-cost ratio of 1.7.

68. All agencies and interests, which might be affected by Federal navigation improvements at Essex, have been consulted. The State of Connecticut and the Town of Essex have approved the improvement plan and agreed to share the local cash contribution. The Town has given assurances of local cooperation and participation, which include extension of the existing public landing and provision of suitable spoil disposal areas, with all necessary retaining dikes, bulkheads, and embankments.

69. The U. S. Coast Guard has advised of the need and the cost of six additional navigational aids that would be provided and maintained by their agency. The U. S. Fish and Wildlife Service has reported that the improvement would not result in commercial fishing benefits or have any significant effect on fish and wildlife resources. They recommend that no spoil be placed on Thatchbed Island and that use of current spoil areas on Nott Island is preferable to placing hydraulic fill in bulkheaded areas on Essex Island.

CONCLUSIONS

70. Present and prospective needs of navigation at and in the vicinity of the Essex waterfront on the Connecticut River would be fulfilled by adoption of a project to provide (1) a channel 10 feet deep, generally 100 feet wide, and about 4,400 feet long, and (2) a 34-acre anchorage with sections 8 and 10 feet deep, as shown on the maps accompanying this report. The resulting benefits are sufficient, as indicated by a benefit-cost ratio of 1.7, to justify this work and warrant a Federal improvement project at Essex. Local interests have indicated they are willing and able to meet the requirements of local cooperation.

RECOMMENDATIONS

71. The Division Engineer recommends that modification of the existing Federal navigation project for the Connecticut River below Hartford be authorized at Essex, Connecticut, at an estimated cost of \$112,000 for construction and \$3,700 annually for maintenance to provide:

a. An access channel 10 feet deep, generally 100 feet wide, and about 4,400 feet long, which would extend from the existing 15-foot Federal channel off Essex Reef to and northward along the Essex waterfront, and then return to the existing 15-foot Federal channel near the northern end of Essex Shoal;

b. An anchorage of about 15 acres 10 feet deep in the southern half of the area bounded by the access channel and the existing 15-foot Federal channel;

c. An anchorage of about 19 acres, 8 feet deep in the north half of the area bounded by the two channels.

72. Improvement of the Connecticut River roadstead at Essex by the United States is recommended subject to the conditions that local interests:

a. Provide, without cost to the United States, all lands, easements, rights-of-way, and suitable spoil disposal areas, with all necessary retaining dikes, bulkheads, and embankments, needed for the construction and maintenance of the project when and as required;

b. Hold and save the United States free from damages that may result from construction and maintenance of the project;

c. Provide and maintain, without cost to the United States, an adequate public landing having berthing depth commensurate to the project depth;

d. Provide and maintain public access roads, parking areas, and other needed public use shore facilities;

e. Regulate the use, growth, and free development of waterfront facilities, with the understanding that said facilities will be open to all on equal terms;

f. Make a cash contribution of 50 per cent of the first cost of the Federal project construction, a contribution presently estimated at \$56,000.

c. Provide and maintain, without cost to the United States, an adequate public landing having berthing depth commensurate to the project depth;

d. Provide and maintain public access roads, parking areas, and other needed public use shore facilities;

73. The improvement recommended appears to meet the requirements for accomplishment under the special continuing authority provided by Section 107 of the 1960 River and Harbor Act. Modification of the existing project for the Connecticut River below Hartford under this authority is recommended.

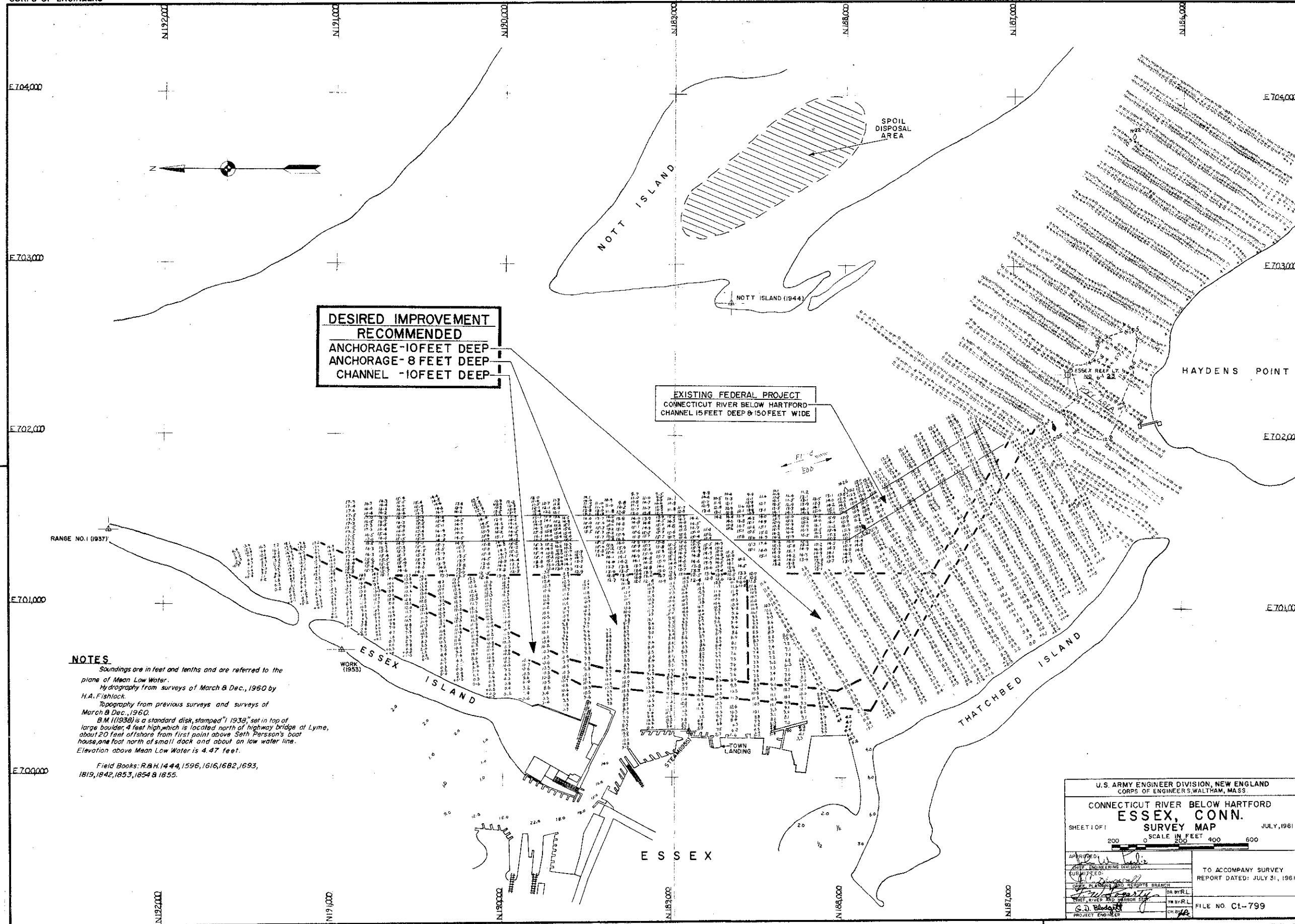
SEYMOUR A. POTTER, JR.
Brigadier General, USA
Division Engineer

4 Inclosures

- 1 - Plate 1 - General Map
- 2 - Plate 2 - Survey Map
- 3 - Appendix A - Estimate of First Cost
- 4 - Appendix B - Fish and Wildlife Reports (2)

CORPS OF ENGINEERS

U. S. ARMY



DESIRED IMPROVEMENT
RECOMMENDED
ANCHORAGE - 10 FEET DEEP
ANCHORAGE - 8 FEET DEEP
CHANNEL - 10 FEET DEEP

EXISTING FEDERAL PROJECT
CONNECTICUT RIVER BELOW HARTFORD
CHANNEL 15 FEET DEEP & 150 FEET WIDE

NOTES.
Soundings are in feet and tenths and are referred to the plane of Mean Low Water.
Hydrography from surveys of March & Dec., 1960 by H.A. Fishlock.
Topography from previous surveys and surveys of March & Dec., 1960.
B.M. (1936) is a standard disk, stamped "1936" set in top of large boulder, 4 feet high, which is located north of highway bridge at Lyme, about 20 feet offshore from first point above Seth Persson's boat house, one foot north of small dock and about on low water line. Elevation above Mean Low Water is 4.47 feet.
Field Books: R.B.H. 1444, 1596, 1616, 1682, 1693, 1819, 1842, 1853, 1854 & 1855.

U.S. ARMY ENGINEER DIVISION, NEW ENGLAND CORPS OF ENGINEERS, WALTHAM, MASS.	
CONNECTICUT RIVER BELOW HARTFORD ESSEX, CONN.	
SURVEY MAP	
SHEET 1 OF 1	
SCALE IN FEET 0 200 400 600	
JULY, 1961	
TO ACCOMPANY SURVEY REPORT DATED: JULY 31, 1961	
FILE NO. CL-799	

CONNECTICUT RIVER BELOW HARTFORD
ESSEX, CONNECTICUT

APPENDIX A

ESTIMATE OF FIRST COST

1. The first cost is given below for the improvement recommended in this report. Federal construction consists of dredging a channel 10 feet deep and generally 100 feet wide from the existing 15-foot Federal channel to the central Essex waterfront and a 34-acre anchorage, 8 feet deep in the northern half and 10 feet deep in the southern half. Modification of the public landing at the foot of Main Street is required of local interests to provide a berthing depth commensurate to the recommended project depth. The U. S. Coast Guard will provide necessary navigation aids.

2. Dredging quantities are in terms of in-place measurement and include an allowance of 1 foot of overdepth and side slopes of 1 vertical on 3 horizontal. Comparison of 1960 soundings with earlier hydrographic surveys discloses that the Connecticut River roadstead area at Essex has shoaled in recent years. Nearby maintenance dredging operations along the Essex waterfront indicate that the shoaled area consists largely of sand material which can be removed by hydraulic dredge and spoiled on nearby Nott Island. Cost estimates are based on prices prevailing in June 1961.

3. The detailed estimate of cost is as follows:

PROJECT COST ESTIMATE

<u>Cost Account Number</u>	<u>Item</u>	<u>Cost Estimate (x \$1,000) (June 61)</u>
09	CHANNELS - 10' channel, anchorage 8' and 10' (Dredging 66,000 c.y. @ \$1.22 -81.0) (Contingencies @ 15% -12.0)	93.0
29	PREAUTHORIZATION STUDIES	7.0
30	ENGINEERING and DESIGN	7.0
31	SUPERVISION and ADMINISTRATION	12.0
	TOTAL COST (Corps of Engineers Funds and Non-Federal Contributions)	119.0
	Non-Federal Contributions	56.0
	TOTAL NON-FEDERAL COSTS	
	Lands and Damages	0
	Relocations	0
	Other: Cash Contributions (50% of 112.0)	56.0
	Improvement of Public Landing	4.0
	TOTAL NON-FEDERAL COSTS	60.0

SUMMARY OF ESTIMATED COSTS

Federal Cost	
Corps of Engineers	63.0
Coast Guard	4.0
Required Non-Federal Costs	
Cash Contribution	56.0
Other	<u>4.0</u>
TOTAL FEDERAL AND REQUIRED NON-FEDERAL COSTS	127.0

CONNECTICUT RIVER BELOW HARTFORD

ESSEX, CONNECTICUT

APPENDIX B

U. S. FISH AND WILDLIFE SERVICE REPORT

By letter of 20 March 1961, the Regional Director of the United States Fish and Wildlife Service was advised of the plan of improvement under consideration and requested to comment on the effect of the improvement on fish and wildlife. It was explained that the dredged spoil would probably be placed on the northern part of Essex Island and/or on the eastern and central sections of Thatchbed Island.

The Fish and Wildlife Service was notified by letter on 15 May 1961 of later modifications which were incorporated in the plan of improvement and advised that additional study indicated that Nott Island would be the best available area for spoil disposal. The full report of the Fish and Wildlife Service is reproduced on the following pages:



ADDRESS ONLY THE
REGIONAL DIRECTOR

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
59 TEMPLE PLACE
BOSTON, MASSACHUSETTS

NORTHEAST REGION
(REGION 5)
MAINE
NEW HAMPSHIRE
NEW YORK
VERMONT
PENNSYLVANIA
MASSACHUSETTS
NEW JERSEY
RHODE ISLAND
DELAWARE
CONNECTICUT
WEST VIRGINIA

May 15, 1961

Division Engineer
New England Division
U. S. Army Corps of Engineers
424 Trapelo Road
Waltham 54, Massachusetts

Dear Sir:

This letter constitutes our conservation and development report on the proposed navigation dredging in the Connecticut River at Essex, Connecticut, to provide an access channel and open anchorage, as outlined in your letter of March 20, 1961. Our report has been prepared in cooperation with the Connecticut State Board of Fisheries and Game and has their concurrence.

The plan of improvement, requested by local interests, includes dredging a channel 10 feet deep at mean low water and 100 feet wide extending from the main ship channel off Essex Reef to the entrance to Middle Cove, thence northward about 150 feet off the present shorefront to the entrance to North Cove, and from there northeast to the main channel off the northern end of Essex Shoal. The improvement would also include dredging the area bounded by the access channel and the main channel for use as a small-boat anchorage. Local interests request that the southern half of the anchorage be dredged to 10 feet at mean low water and the northern half to 8 feet at mean low water. About 64,000 cubic yards of material would be removed by hydraulic dredging.

Dredged spoil would be deposited on either, or both, of 2 spoil areas provided by local interests on the west side of the ship channel. The possibilities mentioned are Essex Island and the east side of Thatchbed Island. Limitations on the use of Nott Island for spoil disposal because of possible interference with ship traffic are noted.

There would be no significant effects on fish and wildlife at the dredging site. However, the placing of hydraulic fill on Essex Island

Without efficient bulkheads would result in significant losses. North Cove is heavily used by waterfowl and shorebirds, especially during spring and fall migration periods, and sedimentation resulting from unconfined spoil deposition would be destructive to plant and animal organisms which provide food for waterfowl and shorebirds. The State Board of Fisheries and Game owns a tract of land on Thatchbed Island and it has expressed objections to placement of fill thereon. The placement of fill here would destroy the natural habitat on the island; downgrade the area for waterfowl hunting, a primary use at present; and cause siltation of valuable feeding areas in North Cove. Any clogging with silt or debris of the outlet at the northern end of Essex Island could endanger valuable food plants in North Cove by cutting down water circulation.

In the light of foregoing statements we recommend--

1. That no spoiling be done on Thatchbed Island.
2. That the spoil deposition area be selected on a priority basis as follows:
 - a. Current spoil areas on Nott Island.
 - b. Bulkheaded areas on Essex Island.
3. That no encroachment of silt or debris be left to limit North Cove circulation.

No further studies will be required by this Bureau unless you contemplate use of spoil areas other than those discussed in our report.

Thank you for giving us an opportunity to report on this plan of improvement.

Sincerely yours,


John S. Gottschalk
Regional Director



ADDRESS ONLY THE
REGIONAL DIRECTOR

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
59 TEMPLE PLACE
BOSTON, MASSACHUSETTS

NORTHEAST REGION
(REGION 5)
MAINE
NEW HAMPSHIRE
NEW YORK
VERMONT
PENNSYLVANIA
MASSACHUSETTS
NEW JERSEY
RHODE ISLAND
DELAWARE
CONNECTICUT
WEST VIRGINIA

June 7, 1961

Division Engineer
New England Division
U. S. Corps of Engineers
424 Trapelo Road
Waltham 54, Massachusetts


Dear Sir:

The conclusions and recommendations of our report of May 15 on the plan for navigation improvement of the Connecticut River at Essex are not affected essentially by the modifications of the plan described in your letter of May 15.

We are pleased to note that the adoption of Nott Island as the spoil area fulfills to a major extent the recommendations of our report.

Measures to protect the valuable waterfowl habitat in North Cove during construction operation would ensure that this project will be constructed with minimal damages to fish and wildlife resources.

Sincerely yours,


John S. Gottschalk
Regional Director